

What is claimed is:

1. An endoscope system, comprising:
 - an endoscope that has an image pick-up device having a plurality of cells for accumulating charge in response to an image formed on the plurality of cells;
 - a light source that is capable of emitting excitation light; and
 - a controlling system that controls said image pick-up device so that charges accumulated in two or more of the plurality of cells are added together when the excitation light is used.
2. The endoscope system according to claim 1, wherein said image pick-up device includes a charge coupled device.
3. The endoscope system according to claim 2, wherein said charge coupled device has a frame-transfer architecture.
4. The endoscope system according to claim 2, wherein said charge coupled device has an interline architecture.
5. The endoscope system according to claim 2,
 - wherein said controlling system includes:
 - a driver circuit that outputs timing signals to said

charge coupled device, said charge coupled device outputting charge accumulated in said plurality of cells in accordance with the timing signals;

a detection amplifier that accumulates charge outputted by said charge coupled device and outputs voltage levels in accordance with the charge accumulated therein; and

a correlated double sampling circuit that samples the voltage levels outputted by said detection amplifier and outputs a sampled signal.

6. The endoscope system according to claim 5,

wherein the plurality of cells in said charge coupled device are arranged in a matrix,

wherein said charge coupled device further includes a horizontal transferring charge coupled device connected to the plurality of cells in the charge coupled device, the horizontal transferring charge coupled device outputting the charge to said detection amplifier.

7. The endoscope system according to claim 6,

wherein charge accumulated in each of the plurality of cells arranged in the matrix is transferred vertically a plurality of times toward the horizontal transferring charge coupled device so that charge of at least two cells aligned vertically in the plurality of cells is accumulated in each cell.

of the horizontal transferring charge coupled device.

8. The endoscope system according to claim 6,
wherein charge accumulated in each of cells in the horizontal transferring charge coupled device is transferred horizontally a plurality of times so that charge of at least two cells in the horizontal transferring charge coupled device is accumulated in said detection amplifier.

9. The endoscope system according to claim 7,
wherein said driving circuit transmits reset pulses to said detection amplifier to discharge the charge accumulated in said detection amplifier, and transmits sampling signals to said correlated double sampling circuit to sample the voltage levels outputted by said detection amplifier,

wherein said driving circuit controls timing of the reset pulses and the sampling signals so that charge of the at least two cells aligned vertically in the plurality of cells is accumulated in each cell of the horizontal transferring charge coupled device.

10. The endoscope system according to claim 1, further comprising an image processing system that generates an image for fluorescent observation so that an intensity of one pixel of the image corresponds to the added charges of the two or more

of the plurality of cells.

11. The endoscope system according to claim 1,

wherein said image pick-up device includes a color CCD having color filter covering the plurality of cells,

wherein said controlling system controls said color CCD so that a number of cells whose charges are added together becomes an integral multiple of a number of filter elements of the color filter to be used for generating a pixel of an image for fluorescent observation.

12. The endoscope system according to claim 11, further comprising a memory that stores information concerning a repetition pattern of the filter elements,

wherein said controlling system obtains the number of filter elements to be used for generating the pixel of the image for fluorescent observation based on the information stored in said memory.

13. The endoscope system according to claim 1,

wherein said image pick-up device includes a color CCD having color filter covering the plurality of cells,

wherein said controlling system controls said color CCD so that a number of cells whose charges are added together becomes an integral multiple of a number of filter elements of

the color filter to be used for generating a pixel of an image for fluorescent observation,

wherein said control system controls said color CCD so that a combination of the filter elements, to which the two or more cells added together correspond, is changed between an odd field and an even field.

14. The endoscope system according to claim 13, further comprising an image processing system that generates an interlace scan image signal so that an intensity of one pixel of the interlace scan image signal corresponds to the added charges of the two or more of the plurality of cells.